Review

1. Solve for x. Leave your answers in simplified fractional and/or radical form as appropriate.
   a. $3(2x-4)=6x+x-3$
   b. $7+x^2=31$

2. Multiply or expand each expression.
   a. $(2x)^3$
   b. $(3x)^4$
   c. $(3x-2)^2$
   d. $(3x)^{-3}$

3. Suppose $f(x)=2x^2-3$, find:
   a. $f(4)$
   b. $f(3b)$
   c. $f(-5)$
   d. $f(a+1)$

5. State the argument for each of the following functions.

a. $(x+2)^3$

b. $f(2x-1)$

c. $\sqrt{x^2+4}$

d. $\sin 5x$

6. Find a function that would perform the following transformations to the parent function $f(x)=\sqrt{x}$

a. Triple the function values and thus stretch the graph vertically

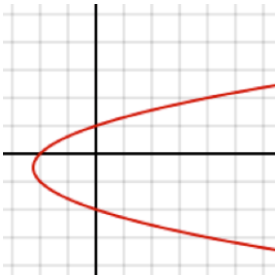
b. Shift the graph four units to the right and down 3 units

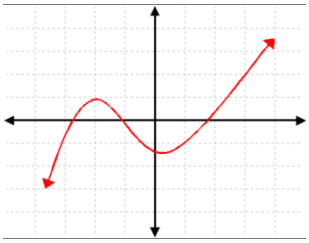
c. Reflection over the x-axis and shift it up 2 units

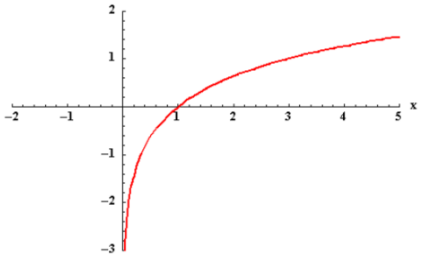
7. Suppose $f(x)=x^2$ and $h(x)=(x-3)^2+7$. **Describe** the transformation of the graph of $f(x)$ to $h(x)$.

Determine if the following graphs are functions. Justify your answer.

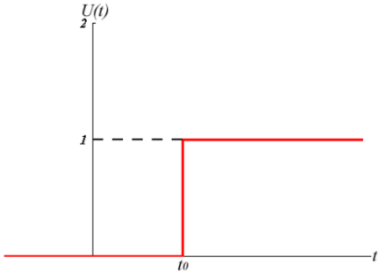
8.

a. 

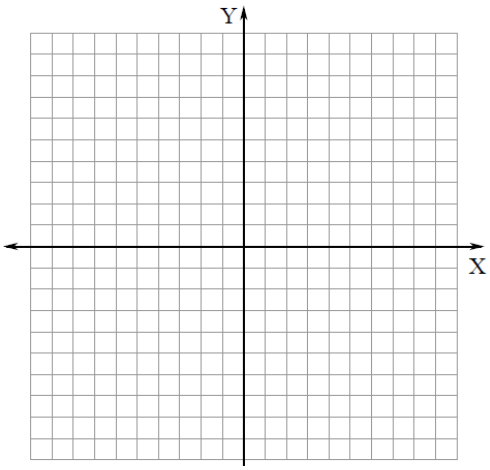
b. 

c. 

9. Explain why the following graph, $U(t)$, is not a function.



10. Graph the parent function $f(x)=|x|$ to the right. Then shift the function 2 units to the left and up 1 unit label this new graph $g(x)$.



Write the equation for $g(x)$:_____